10 CSR 10-5.442 Control of Emissions from Lithographic Printing Operations

(1) Definitions. Definitions of some terms specified in this rule may be found in 10 CSR 10-6.020. Other definitions specific to this rule are as follows:

(A) Alcohol—Refers to isopropanol, isopropyl alcohol; normal propyl alcohol or ethanol;

(B) Alcohol Substitutes—Nonalcohol additives that contain volatile organic compounds (VOCs) and are used in the fountain solution;

(C) Cleanup solution—A liquid used to remove printing ink and debris from the surfaces of the printing press and its parts;

(D) Fountain solution—The solution which is applied to the image plate to maintain the hydrophilic properties of the nonimage areas. It is primarily water containing an enchant, gum arabic and a dampening aid;

(E) Heatset—A class of web-offset lithography which requires a heated dryer to evaporate the ink oils and solvents from the printing inks;

(F) Lithographic printing—A printing process where a planographic plate is used with the image area oleophilic and the nonimage area hydrophilic;

(G) Press—A printing production assembly that can be made up of one (1) or many units to produce a finished product;

(H) Printing—Any operation that imparts color, design, alphabet, or numerals on a substrate;

(I) Printing ink—Any fluid or viscous composition used in printing, impressing, or transferring an image onto a substrate;

(J) Offset—The process that transfers an image from a plate to a rubber blanket cylinder before transfer to the substrate surface to be printed;

(K) Sheet-fed—Printing presses that are fed from a stack of individual paper sheets instead of a web. Sheet-fed presses generally use coldset inks; and

(L) Web—The substrate printed in a continuous roll-fed printing process.

(2) Applicability.

(A) This rule shall apply to installations that operate offset lithographic printing presses including heatset web offset presses, non-heatset web offset presses (newspaper and non-newspaper), and non-heatset sheet-fed offset presses in the City of St. Louis and Jefferson, St. Charles, Franklin and St. Louis Counties.

(B) This rule shall apply only to installations described in subsection (2)(A) which have ever had the potential to emit VOCs equal to or greater than one hundred (100) tons per year. Once the installation exceeds the applicability level of this rule, it shall remain subject to this rule even if its potential emissions drop below the applicability level.

(C) This rule shall not apply to printing on fabric, metal or plastic.

(3) Emission Limits.

(A) No owner or operator shall use or permit the use of any offset lithographic printing press unless—

1. For heatset web presses—

A. The fountain solution contains one and six-tenths percent (1.6%) or less by volume of alcohol; or

B. The fountain solution contains three percent (3.0%) or less by volume of alcohol and is refrigerated to a temperature of sixty degrees Fahrenheit (60/F), or less; or

C. The fountain solution contains five percent (5.0%) or less by volume alcohol substitutes; and

D. The fountain solution mixing tanks are covered for alcohol-based solutions;

2. For sheet-fed presses—

A. The fountain solution contains five percent (5.0%) or less by volume of alcohol; or

B. The fountain solution contains eight and five-tenths percent (8.5%) or less by volume of alcohol and is refrigerated to a temperature of sixty degrees Fahrenheit (60/F), or less; or

C. The fountain solution contains five percent (5.0%) or less by volume of alcohol substitutes or a combination of alcohol and alcohol substitutes; and

D. The fountain solution mixing tanks containing alcohol-based solutions are covered;

3. For non-heatset web presses—

A. The fountain solution contains five percent (5.0%) or less by volume alcohol substitutes; or

B. The fountain solution contains five percent (5%) or less by volume of a combination of alcohol and alcohol substitutes; and

C. The fountain solution mixing tanks containing alcohol-based solutions are covered;

4. Direct measurement of the alcohol content of the fountain solution sample(s) should be performed with a modification of the EPA Method 415.1. Alternately, a sample of the fountain solution may be taken from the fountain tray or reservoir of fountain solution during use and measured with a hydrometer or refractometer. The unit shall

be considered in compliance with paragraphs (3)(A)1., 2., or 3. if the refractometer or hydrometer measurement is less than or equal to the measurement obtained with a modification of EPA Method 415.1, plus ten percent (10%);

5. The VOC content of a fountain solution containing alcohol substitutes or nonalcohol additives shall be established with proper recordkeeping including the amount of concentrated substitute added per quantity of fountain water, date of preparation and calculated VOC content of the final solution; and

6. Determination of fountain solution temperature for refrigerated fountain solutions shall be determined by a thermometer or other temperature detection device capable of reading to one-half degree Fahrenheit (0.5/F).

(B) No owner or operator shall use or permit the use of any offset lithographic printing press that uses cleanup solutions containing VOCs unless—

1. The cleanup solution has a VOC content of thirty percent (30%) or less, by weight, or a composite vapor pressure less than or equal to ten (10) millimeters of Mercury (Hg) at twenty degrees Celsius (20/C);

2. The cleanup solutions are kept in tightly covered tanks or containers during transport and storage; and

3. The cleaning cloths used with the cleanup solutions are placed in tightly closed containers when not in use and while awaiting off-site transportation. The cleaning cloths should be properly cleaned and disposed. The cloths, when properly cleaned or disposed, shall be processed in such a way that as much of the solvent, as practicable, is recovered for further use or is destroyed. A cleaning and disposal plan shall be submitted to the

director by the compliance deadline specified in section (5) of this rule. A copy of the plan must be kept on-site for inspection purposes.

(C) No owner or operator shall use or permit the use of any heatset web-offset lithographic printing press with a dryer that has ever had an actual emission rate of ten (10) tons per year or more of VOCs unless one hundred percent (100%) of the dryer exhaust is ducted to a control device that achieves ninety percent (90%) or greater, by weight control efficiency and the highest achievable capture efficiency reasonable. The dryer pressure shall be maintained below the pressure of the press room to reduce the potential for fugitive VOC emissions from the dryer. Testing procedures for capture efficiencies shall be done as stated in 10 CSR 10-6.030(20), or by another method approved by the director.

(D) Use of emission control equipment under subsection (3)(C) shall require that continuous monitors be installed, calibrated ,operated and maintained. The monitors continuously shall measure—

1. The exhaust gas temperature of all VOC destruction devices and the gas temperature immediately upstream and downstream of any catalytic bed with an accuracy of plus or minus seventy-five hundredths of one per-cent (±0.75%) measured in degrees Celsius, or two and one-half degrees Celsius (2.5/C);

2. The cumulative amount of VOC recovered during a calendar month for all VOC recovery equipment attached to a dryer;
and

3. Any other parameters considered necessary by the director to verify proper operation of emission control equipment.

(4) Recordkeeping.

(A) All persons subject to this rule shall maintain records as required by this section sufficient to determine continuous compliance with this rule. These records shall be kept for at least two (2) years to be automatically extended if enforcement action is pending. These records shall be available immediately upon request for review by the Department of Natural Resources personnel and other air pollution control agencies upon presentation of proper credentials.

(B) All persons subject to subsection (3)(C) shall maintain records for each control device sufficient to demonstrate that the control efficiency is being maintained.

(C) For each regulated printing press, records shall be maintained to show—

1. Percent by volume of alcohol or alcohol substitute(s), if either is used, in fountain solution as monitored on a once-per-day basis;

2. Daily and monthly quantity of alcohol or alcohol substitute(s), if either is used, by volume added to the fountain solution;

3. A Material Safety Data Sheet (MSDS) listing the physical properties of alcohol or alcohol substitute(s) such as density and percent VOC as purchased from the supplier;

4. Results of any testing conducted on an emission unit at a regulated facility;

5. Maintenance records of any air pollution control equipment; and

6. The temperature of refrigerated alcohol-based fountain solution as recorded on a once-per-shift basis.

(D) For each lithographic printing installation subject to this rule, records shall be maintained to show—

1 Properties of heatset inks as applied (determined by the manufacturer's formulation data), density of inks in pounds per gallon, and total VOC content in weight percent;

2. Quantity in pounds of heatset inks as applied to substrate on a monthly basis;

3. Quantity in gallons of cleanup solution used on a monthly basis; and

4. A Material Safety Data Sheet listing the percentage by weight of VOC in the cleanup solution.

(E) The director may require other records as reasonable and necessary to carry out the provisions of the Missouri Air Conservation Law.

(5) Compliance.

(A) All persons subject to the provisions of this rule shall provide to the director for approval a demonstration of final compliance with subsections (3)(A)–(C)—

1. Upon startup of presses which are not in existence and operating on the effective date of this rule; and

2. Within eighteen (18) months after the effective date of this rule for any presses in existence and operating on the effective date of this rule.

(B) All persons subject to the provisions of this rule and not in compliance with all provisions of this rule within twelve (12) months from the effective date of this rule must submit a compliance plan to the director for approval. This plan shall be received within six (6) months after the effective date of this rule. This plan shall include the following:

1. A detailed plan of process modifications; and

2. A time schedule for compliance containing increments of progress, including—

A. Date of submittal of the source's final control plan to the appropriate air pollution control agency;

B. Date by which contracts for emission control systems or process modifications will be awarded; or date by which orders will be issued for the purchase of component parts to accomplish emission control or process modification;

C. Date of initiation of on-site construction or installation of emission control equipment or process change;

D. Date by which on-site construction or installation of emission control equipment or process modification is to be completed; and

E. Date by which final compliance is to be achieved.

(6) Testing Procedures. Testing and compliance demonstrations for subsection (3)(C) of this rule shall follow the procedures contained in Environmental Protection Agency Reference Methods 25 or 25A found in 40 CFR part 60 Appendix A. Further clarification shall be provided by Environmental Protection Agency memo dated October 25, 1993, from John B. Rasnic to all Environmental Protection Agency regional offices.

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EPA Rulemakings

CFR: 40 C.F.R. 52.1320(c)

FRM: 65 FR 8060 (2/17/00)

PRM: 61 FR 10968 (3/18/96)

State Submission: 11/12/99

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Description: This rule restricts the emission of volatile organic compounds from lithographic printing operations.

Difference Between the State and EPA-Approved Regulation

None.